



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/721,478	11/25/2003	Gregory A. Graves	MP1454-US10	6017

7590 03/05/2007  
Tyco Electronics Corporation  
Intellectual Property Law Dept.  
MS R20/2B  
307 Constitution Drive  
Menlo Park, CA 94025-1164

EXAMINER
----------

HOANG, TU BA

ART UNIT	PAPER NUMBER
----------	--------------

2832

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/05/2007	PAPER.

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/721,478

Applicant(s)

GRAVES ET AL.

Examiner

Tu Ba Hoang

Art Unit

2832

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 January 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 21-23 and 25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 21-23 and 25 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 1/23/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

Art Unit: 2832

After further reconsideration, the indicated allowability of claims 21-23 and 25 is withdrawn in view of the newly discovered reference(s) to Chiang et al (US 6,606,023) and Chan et al (5,852,397) and other clarity issues.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 21-23 and 25 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Chan et al (US 5,852,397). Chan et al ('397) shows an electrical assembly (Figures 5-8) comprising a printed circuit board 9 including first and second conductive traces 41,43 on a surface thereof (shown in Figure 8) and an electrical device (shown in Figures 5-6) which comprises a laminar PTC resistive element 17 which is composed of a resistive material which exhibits PTC behavior and has a first and second faces (i.e., upper and opposite bottom surfaces or vice versa), a first laminar electrode 15 which is secured to the first face of the PTC element 17, a second laminar electrode 13 which is secured to the second face of the PTC element 17, at least an additional laminar conductive member 35 or 49 (as shown in Figure 6, i.e., 35 in this case) which is secured to the second face of the PTC element 17 and is spaced apart from the second electrode 13 as shown in Figure 5, wherein the PTC element 17, at least the first electrode 15 and the additional conductive member 35 define an aperture (as set forth at column 12, lines 16-18) which runs between the first electrode 13 and the additional conductive member 49, through the PTC element 17, and at least a transverse conductive member or cross-conductor 31 (or 51) which is composed of metal such as plating copper and solder (column 12, lines 34-35), the transverse conductive member (51 or 31) lies within the aperture (column 12, line 16) and is also physically and electrically connected to the first electrode 15 and the additional conductive member 35, wherein the electrical device shown in Figures 5-6 can be placed on the printed circuit board 9 and parallel thereto with the first conductive trace 41 physically and electrically connected to the additional conductive member (i.e., element 35 in the case) and the second conductive trace 43 physically and electrically connected to the second electrode 13, wherein the apertures can be arranged in a regular pattern or straight line as shown in Figures 8 and 13, the PTC element 17 is composed of a conductive polymer of resistive material having the resistivity at 25 °C of

Art Unit: 2832

less than 50 ohm-cm and preferably of less than 10 ohm-cm (as set forth at column 11, lines 20-24), the device has a resistance of less than 15 ohm (as set forth at column 8, lines 46-48) and a maximum dimension of at most 12mm (as set forth at column 11, lines 48-49).

Claim 23 is rejected under 35 U.S.C. 102(a and e) as being clearly anticipated by Chiang et al (US 6,606,023). Chiang et al ('023) shows an electrical assembly (Figures 1-3) comprising a printed circuit board 9 including first and second conductive traces 41,43 on a surface thereof (shown in Figure 3) and an electrical device (shown in Figure 1) which comprises a laminar PTC resistive element 17 which is composed of a resistive material which exhibits PTC behavior and has a first and second faces (i.e., upper and opposite bottom surfaces or vice versa), a first laminar electrode 15 which is secured to the first face of the PTC element 17, a second laminar electrode 13 which is secured to the second face of the PTC element 17, at least an additional laminar conductive member 35 or 49 which is secured to the second face of the PTC element 17 (i.e., 35 in this case) and is spaced apart from the second electrode 13, wherein the PTC element 17, at least the first electrode 15 and the additional conductive member 35 define an aperture which runs between the first electrode 15 and the additional conductive member 35, through the PTC element 17 where at least a transverse conductive member or cross-conductor 31 (or 51, which is composed of metal such as plating copper and solder) lies within the aperture and is also physically and electrically connected to the first electrode 15 and the additional conductive member 35, wherein the electrical device shown in Figure 1 can be placed on the printed circuit board 9 and parallel thereto with the first conductive trace 41 physically and electrically connected to the additional conductive member (i.e., element 35 in the case) and the second conductive trace 43 physically and electrically connected to the second electrode 13 as shown in Figure 3.

It is also noted that Chiang et al ('023) also discloses the maximum dimension of 12mm, the resistance of less than 15 ohm and the resistivity of the PTC element lies within less than 50 ohm-cm to less than 10 ohm-cm. However, such PTC behavior and dimensional characteristics are chosen at the 23<sup>0</sup>C instead of 25<sup>0</sup>C condition.

#### REMARK

In response to applicant request to clarify the statement "none of the prior art submitted" in the previous Office action would include the non-document information and the reply is "no" unless such non-document information or citations are listed in the PTO-1449, where the examiner will initial for any citations to be considered.

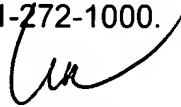
In lieu of the newly discovery arts, the withdrawal of the previous notice of allowance is respectfully regret.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tu Ba Hoang whose telephone number is (571) 272-4780. The examiner can normally be reached on Mon-Thu from 6:00AM to 6:30PM.

Art Unit: 2832

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Elvin Enad can be reached on (571) 272-1990. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Tu Ba Hoang  
Primary Examiner  
Art Unit 2832

March 01, 2007